

National Aeronautics and  
Space Administration

# Headquarters News And Perspective

May 12, 2026

**David B. Considine, Ph.D.**  
NASA Headquarters

A large, circular graphic representing Earth's layers. The center is a blue globe. Surrounding it are concentric rings of different colors and textures: a light blue ring, a green ring, a brown ring, a blue ring, and an orange ring. A satellite with solar panels is positioned on the left side, and a white aircraft is on the right side. The background is a dark blue space with a grid of white stars and a network of white dots connected by lines in the bottom right corner.

# NASA Earth

# Headquarters News

## Earth System Science Research (ESSR, used to be R&A)

- All individual research programs (e.g., MAP, ACMAP, WAD, TE, OBB, etc.) eliminated.
  - Research now organized into “Research Spheres:” Atmosphere, Hydrosphere, Cryosphere, Geosphere, Biosphere, Enabling Capabilities
    - Organization ostensibly prevents “laundry list” program cancelations, streamlines org.
    - “Enabling Capabilities” bundles modeling, early career research, ground networks, airborne facilities.
    - ROSES 25 & 26 Sphere solicitations planned – release ASAP.
    - Intention is to have annual solicitations for all Spheres.
    - Some difficulties getting approval from 9<sup>th</sup> floor.
    - ROSES 25 – June?
    - ROSES 26 – August?
  - NASA Earth Science Research Results Portal – please submit results, particularly recent results



# Headquarters News (continued)

## Integrated Earth System Modeling:

- **Large Scale Modeling assets reorganized into “Integrated Modeling Virtual Institute (IMVI)”**
  - IMVI replaces previous MAP program and consolidates other modeling efforts.
  - Impression was that ESD modeling efforts were too stovepiped.
  - 7120.8 organization (Project Office);
    - Argie Kavvada (HQ) is Program Manager,
    - Lesley Ott (GSFC) is Project Scientist.
  - GISS Model E and GMAO GEOS are components of IMVI.
    - GEOS reanalyses, GEOS-IT should not be affected.
  - Argie is also constructing an ESD-wide modeling strategy due to be released this fall.

# Headquarters News (continued)

## Flight News:

- Terra – anticipated end of operations: 2/2027. Not invited to Senior Review
- Aqua – anticipated maximum lifetime: 9/2027. Invited to Senior Review
- Aura - anticipated maximum lifetime: 8/2028. Invited to Senior Review
- Senior Review: April 2026.
  - Result/guidance anticipated September 2026.
- TSIS – 1: Was invited to Senior Review, currently operating nominally.
- TSIS – 2: Working on launch vehicle. Launch anticipated 1/2027.
- Libera: Integrated on JPSS-4. Launch anticipated fall, 2027.
- CLARREO-PF: Launch on CRX-34 scheduled for 7:16 PM today!!!!
- ESO planning: FALCON (Fleet for the Atmosphere Linking Commercial Observations with NASA)
  - INCUS, PoSIR, PMM – part of the FALCON Fleet
  - FALCON-Lidar (GSFC/LaRC): 532/1064 polarized backscatter?
  - FALCON-Radar (JPL): W-band with doppler?
  - FALCON-Radiometry (Commercial - RFI released)

## Headquarters News (continued)

### **Flight News (continued):**

- Flight mission science teams eliminated (e.g., CALIPSO/CloudSat, PMM, etc.)
- Mission science teams replaced with the “Multisource Integrated Observatory” or MIO:
  - MIO will fund “DART” (Data, Applications, Research, Technology) teams.
  - Missions in prime operations will have an associated MIO DART team, with one renewal past prime operations – like previous science teams.
  - MIO will include “thematic” DART teams intended to fund teams organized around specific themes (e.g., “water”, “life”, “disasters.”)
  - PM for MIO – John Haynes. Deputy PM – John Sullivan.
  - MIO teams will be competed in ROSES.
  - Treatment for Libera, TSIS-2 may differ - possible roll-up with CERES, currently being discussed.

## Headquarters News (continued)

### Data Systems:

- DAACs will be consolidated, streamlined.
  - 11 DAACs -> Thematic (Atmosphere, etc.)
  - Consolidation of common but currently independently implemented functions.
- Development of “Foundational Data Products” program.

### Budget:

- Presidential Budget Request for FY 27 released April, 2026.
- Earth Science: \$1,021 Billion (FY 26 Enacted was 2.153 B)
- Headquarters required to produce an ESD Budget consistent with PBR.
- Also planning for an enacted budget more in line with 2026 – or a CR.
  - A flat budget in 2027 is still considered to be the best outcome.
  - Headquarters is looking for “streamlining opportunities.”
- Libera and TSIS-2: funding for both was included in 2025 PBR
  - Funds for both mostly spent – would be a huge waste to cut at this point.

## Back Up Slides

**Note – a lot of  
interesting content  
here**

# Three Major Objectives in Implementing Earth Science in 2026

## Drive Alignment with Presidential Priorities

- Advance Gold Standard Science and understanding of the Earth System
- Technology Innovation & Advancement
- Economic Growth
- Strengthen National, Regional and Local Preparedness and Resilience

## Focus on Impact

- Reduce programmatic complexity of ES Research and Applied and Responsive Earth Sciences
- *Multisource Integrated Observatory* to maximize science and applications value from NASA and commercial missions
- Modeling integration to answer complex questions
- Engage the broader Earth Observation community including private sector service providers and end-users, academia, commercial EO industry, and state and local governments

## Drive Efficiency

- Improved fidelity of planning for DAAC transition to Science Enabling Teams
- Focus on more rapid mission development timelines
- Streamlined and faster ROSES solicitations

# Strategic Approach

- **Focus on NASA-unique**
  - **Flight:** Prioritize missions for which NASA is the global leader
  - **Technology:** Focus on quantum, targeted advanced sensing, rapid transition to operations and commercialization
  - **Data:** Focus on NASA data discovery and usability
  - **Science & Applications:** Focus on accelerating multi-mission/multisource discovery and pipeline to applications
  - **Applications:** Increase focus on economic sector stakeholder needs
- **Focus on National challenges**
  - Wildland fires
  - Water and food security
  - Economic growth and connections to the private sector
  - Resilience at state and local levels
- **Ensure executability**

# ESD Research advances Earth system science by enabling the use of satellite, airborne, and ground-based observations, along with modeling approaches, to improve understanding of Earth processes.

## Atmosphere

Studies the dynamics and thermodynamics of the atmosphere, its physical and chemical composition, and the interdependent impacts that these have on the Earth's radiative balance, air quality, and weather.

## Geosphere

Studies processes and changes in the Earth's core, mantle, and crust along with surface topography and geology, and the hazards they generate, along with studying geodesy and geodynamics.

## Biosphere

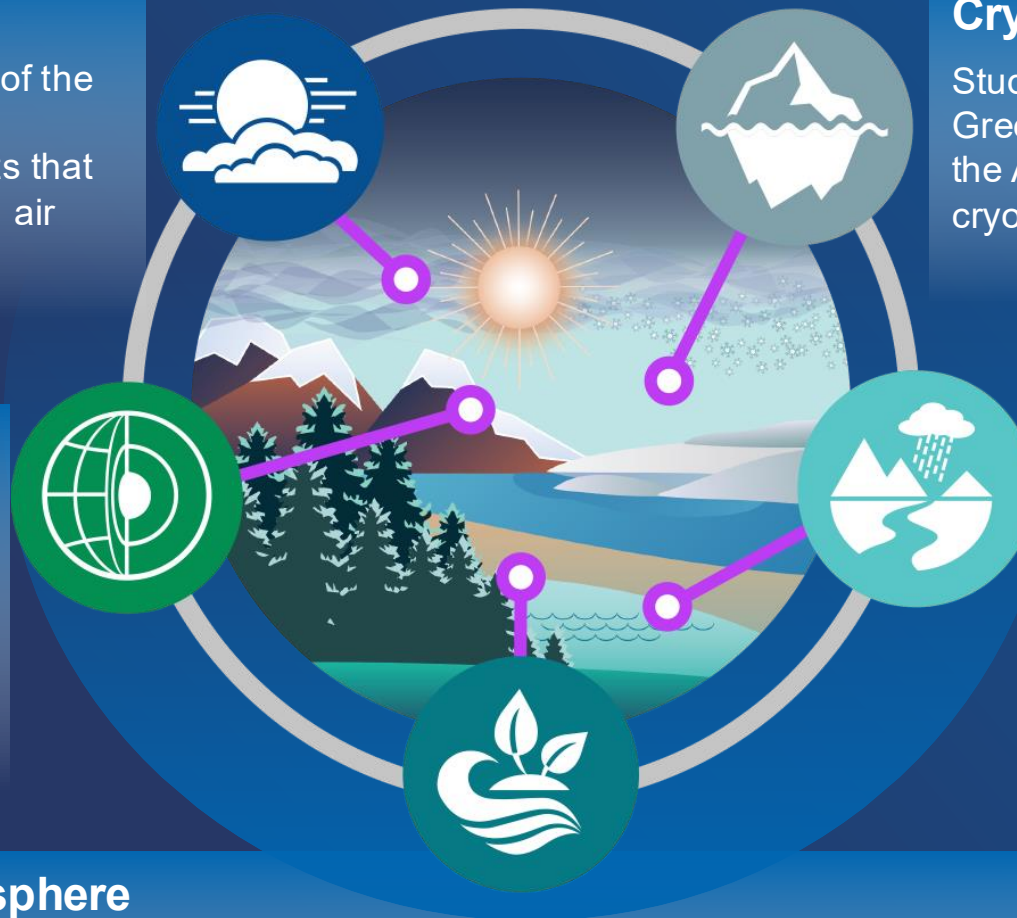
Studies the interactions between/within terrestrial and aquatic ecosystems, along with changes in their biogeochemistry and biodiversity, to further understand the Earth system in which both human-induced and natural changes influence productivity and the availability of natural resources.

## Cryosphere

Studies polar ice, including the Antarctic and Greenland ice sheets, polar glaciers, sea ice in the Arctic and Southern Oceans, and the cryosphere's link to Earth system

## Hydrosphere

Improves the observation, understanding, and prediction of water and energy in the Earth System across land, ocean, and the atmosphere through the integration of measurements from satellites, surface networks, and airborne campaigns.



# NASA Earth Science Research Results Portal



### BioSCape grows the biodiversity remote sensing user community by delivering hands-on training opportunities.



Meetings and Events

### NURTURE '26 News Story on CBC Newfoundland & Labrador



Ashley Brauweiler shows how a NASA project in Labrador will help predict weather

Here & Now



### JGR Atmospheres

#### RESEARCH ARTICLE KAZR-CloudSat Analysis of Snow Profiles at the North Slope of Alaska: Implications of the Satellite Radar Blind Zone

J. A. Shates<sup>1</sup>, C. O. Petersen<sup>2</sup>, T. S. L'Ecuyer<sup>3</sup>, and M. S. Kalle<sup>4</sup>

<sup>1</sup>Jet Propulsion Laboratory, California Institute of Technology, Pasadena, CA, USA, <sup>2</sup>Department of Climate and Space Sciences and Engineering, University of Michigan, Ann Arbor, MI, USA, <sup>3</sup>Department of Atmospheric and Oceanic Sciences, University of Wisconsin-Madison, Madison, WI, USA, <sup>4</sup>Atmospheric Physics and Dynamics Branch, NOAA/NESDIS/Center for Satellite Applications and Research, Madison, WI, USA

**Abstract** Spaceborne radars provide near-global observations of clouds and precipitation, but ground clutter can result in a satellite radar blind zone as high as 2 km above the surface. As a result, satellite radars may underestimate snowfall from shallow clouds and incorrectly flag snow virga as snowfall at the surface. Ground-based radar observations provide invaluable tools to assess satellite-based snowfall estimates. This study investigates snowfall regimes using observations from Atmospheric Radiation Measurement North Slope of Alaska sites identified in the Ka-band ARM zenith radar (KAZR) are separated into three categories: deep snowfall, shallow snowfall, and snow virga for nearly half of the regime occurrence (48%) followed by snow. However, more than half (62%) of the shallow snowfall is likely a satellite radar blind zone. Snow virga is incorrectly flagged as snow increases to 12% in October. The KAZR regimes and vertical stratification of snowfall are compared to CloudSat observations with snow certainty flags, the depth at the ground-based and spaceborne radar observations. An accumulation and accumulation at varying reflectivity thresholds in 1 detection characteristics for current and planned spaceborne radar.

**Plain Language Summary** In a warmer climate, permafrost is melting, and snow is melting earlier in the season. This study shows that satellite radars can miss snowfall from shallow clouds and incorrectly flag snow virga as snowfall at the surface. Ground-based radar observations provide invaluable tools to assess satellite-based snowfall estimates. This study investigates snowfall regimes using observations from Atmospheric Radiation Measurement North Slope of Alaska sites identified in the Ka-band ARM zenith radar (KAZR) are separated into three categories: deep snowfall, shallow snowfall, and snow virga for nearly half of the regime occurrence (48%) followed by snow. However, more than half (62%) of the shallow snowfall is likely a satellite radar blind zone. Snow virga is incorrectly flagged as snow increases to 12% in October. The KAZR regimes and vertical stratification of snowfall are compared to CloudSat observations with snow certainty flags, the depth at the ground-based and spaceborne radar observations. An accumulation and accumulation at varying reflectivity thresholds in 1 detection characteristics for current and planned spaceborne radar.



### Publications and Scientific Developments

#### Addressing Challenges and Exploring Solutions to Enhance Earth Observation Applications for Emergency Management

Patrick Kerwin<sup>1</sup>, Jordan Bell<sup>1</sup>, John Cooney<sup>2</sup>, Timothy Lehmers<sup>3</sup>, Alexander Malasicos<sup>4</sup>, Julia Milton<sup>5</sup>, Kristen Okora<sup>6</sup>, Julie Rolfe<sup>7</sup>, Rachel Vershel<sup>8</sup>, Joshua Barnes<sup>9</sup>, Lauren Childs-Gleason<sup>10</sup>, Katie Picchione<sup>11</sup>, and Patrick Res<sup>12</sup>

#### Wide-swath altimetry maps bank shapes and storage changes in global rivers

A. Carlier<sup>1</sup>, J. Wade<sup>2</sup>, C. H. Davis<sup>3</sup>, M. Durand<sup>4</sup>, R. P. M. Frasson<sup>5</sup>, T. Pavelsky<sup>6</sup> & H. Oubanas<sup>7</sup>

Rivers are Earth's most renewable and accessible freshwater resource, yet global estimates of the magnitude and variability in river water storage have remained few and inconsistent<sup>1</sup>. Previous estimates of variability have relied either on sparse and asynchronous remote-sensing observations<sup>2,3</sup> or on hydrological models constrained by incomplete understanding of surface-water balance and poorly known river channel characteristics<sup>4</sup>. The insufficient knowledge of temporal variations in river water storage across space hinders effective management of this critical freshwater resource<sup>5,6</sup>. Here we present near-global-scale observations of active river channel geometry and associated monthly changes in water storage at the reach scale derived from the first water year (October 2023 to September 2024) of the Surface Water and Ocean Topography (SWOT) mission<sup>7</sup> at 126,674 reaches worldwide. Clear patterns of riverbed shape and storage variability expectedly emerge across major basins. SWOT reveals a range of 313.1 ± 129.5 km<sup>3</sup> in global annual river storage variability, approximately 28% lower than the lowest previously modelled estimates for the same-wider reaches. Although the Amazon's 2024 record drought, the observational challenges in the Arctic and the revised frequency of SWOT almost certainly contribute to the discrepancy, the observations point to distinct knowledge limitations in surface-water science. These findings highlight key opportunities to improve the fundamental representation of surface-water dynamics in global models and to better inform water resource management and disaster mitigation at scale.

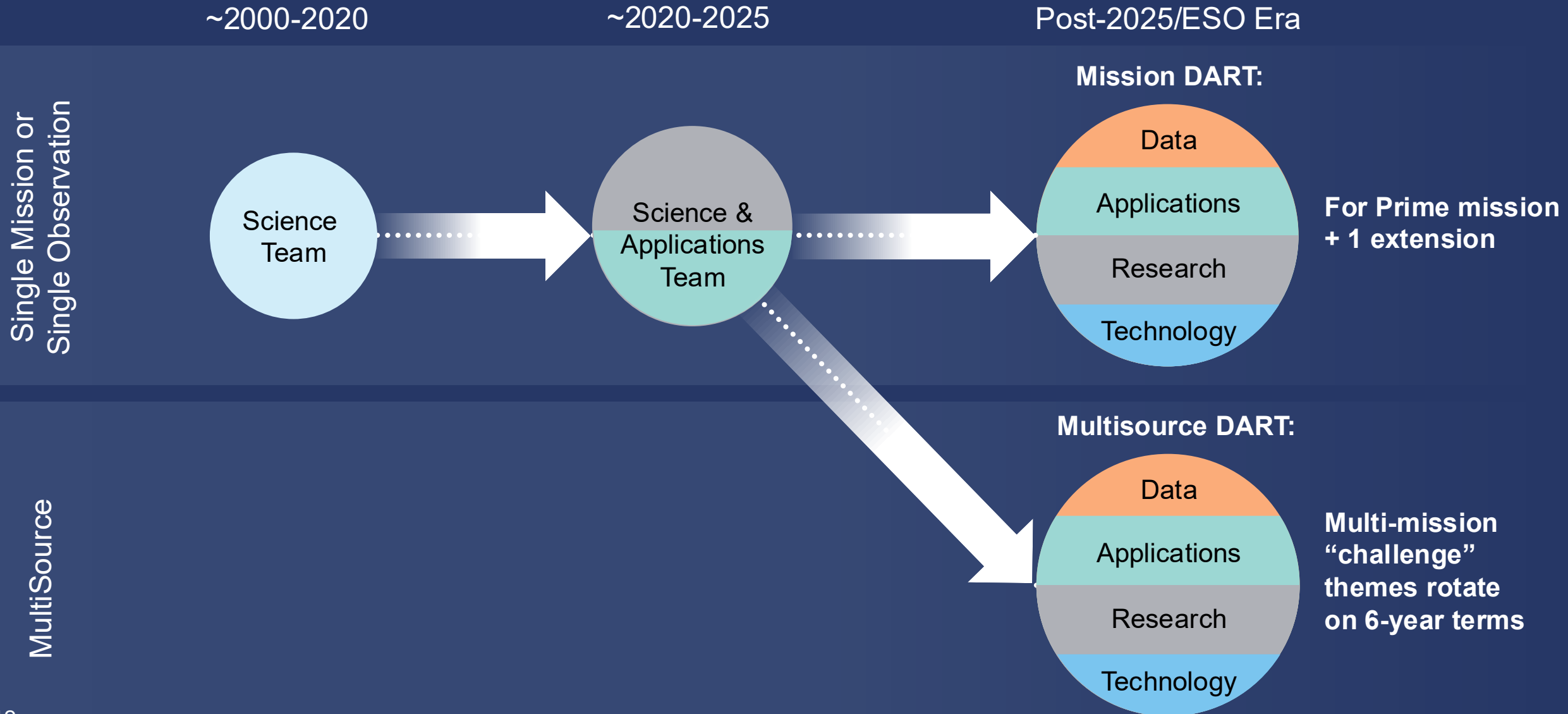
Precise monitoring of global river fluxes and storage is becoming increasingly vital as river corridors and their biodiversity are threatened by global environmental change<sup>1,2</sup>, intensifying extreme events<sup>3,4</sup>, and rising anthropogenic pressures such as pollution, population growth and transboundary conflicts<sup>5,6,7</sup>. Rivers hold only 1% (approximately 2 × 10<sup>6</sup> km<sup>3</sup>) of all liquid surface freshwater by volume (approximately 194 × 10<sup>6</sup> km<sup>3</sup>), which itself accounts for less than 1% of all liquid freshwater on Earth (approximately 23,094 × 10<sup>6</sup> km<sup>3</sup>), but offer the most renewable and accessible freshwater supply, making them an essential component of sustainable water availability for ecosystems and people. Still, few global estimates of global river storage magnitude and variability exist<sup>8</sup>. These estimates show limited reliability and a large spread, primarily owing to the challenge of accurately modelling the global hydrological cycle and the lack of observational constraints on global rivers. Two numerical modelling studies have recently estimated the intra- and interannual variability in Earth's river storage using outputs from global hydrologic models<sup>9,10</sup> and their findings differ by an order of magnitude. This divergence stems from two major uncertainties: land run-off inputs into rivers and water propagation speed, an emergent property of channel geometry<sup>11</sup> and residence time<sup>12</sup>. Run-off and propagation speed are at the core of even the simplest mathematical models for river water propagation<sup>13,14</sup>, yet neither is well constrained at global scales, leading to widespread disagreement in estimates of modelled river water storage and its variability. Alternatively, remote sensing has offered a promising counterpart to modelling for estimating river water storage changes. Common approaches combine satellite measurements of water surface elevation (WSE) from altimeters with river width from optical or radar imagers, and sometimes incorporate digital elevation models, producing empirical elevation-width relationships at individual river cross-sections<sup>15</sup>. These satellite-based storage change estimates have suggested very limited agreement with hydrologic model outputs, underscoring that large uncertainties are likely to affect global estimates<sup>16</sup>. One key limitation of past remote-sensing approaches is that elevation measurements have been opportunistic and sparse, following the widely spaced ground tracks of ocean altimetry missions. Another limitation is that elevation and width were typically being observed asynchronously from different satellite platforms, hence requiring temporal interpolation and introducing additional observational uncertainty<sup>17,18</sup>.

<sup>1</sup>Jet Propulsion Laboratory, California Institute of Technology, Pasadena, CA, USA; <sup>2</sup>School of Earth Sciences, The Ohio State University, Columbus, OH, USA; <sup>3</sup>Department of Earth, Marine and Environmental Sciences, University of North Carolina, Chapel Hill, NC, USA; <sup>4</sup>USDA, Livestock Research, Applied Health, Biometrics, Global Health, Institute for Agriculture, and Forestry, Montpellier, France; <sup>5</sup>These authors contributed equally to A. Carlier, J. Wade, C. H. Davis, M. Durand, R. P. M. Frasson, T. Pavelsky & H. Oubanas

Campaign Highlights

# Evolution of NASA Mission Science Teams

18 Mission Teams to 10 DART Teams, including 3 interdisciplinary multisource DART teams



# Multisource Integrated Observatory (MIO)

Maximizing the value and impact of NASA Earth Science by combining observations from multiple NASA missions, domestic and international partners, and commercial industry

**3 multisource thematic teams solicited through ROSES 2026**



## WATER

Multi-source proposals that advance our understanding and decision-making ability to characterize the complete water cycle



## LIFE

Multi-source proposals that advance our understanding and decision-making ability to protect life on Planet Earth



## CHALLENGES (RFI)

Identifying large scale interconnected challenges that can be addressed with multisource data

# Planned ROSES-26 Elements

Estimated for Summer 2026 (release date and elements subject to change)



## Earth System Science

- Atmosphere
- Biosphere
- Cryosphere
- Geosphere
- Hydrosphere
- Integrated Earth System Modeling (IESM)
- Professional Engineering and Scientist Exchange Program (PESEP)



## Technology

- FireSense Technology
- Intelligent Systems
- Venture Technology Accelerator



## Earth Action

- Accelerating Earth Solutions
- Agriculture
- Commercial Data Calibration and Validation
- Disaster Risk Reduction, Recovery, Resilience
- Energy & Infrastructure
- INNOVATE
- User-Centered Applications from Large Earth Foundational Models



## ESD and SMD

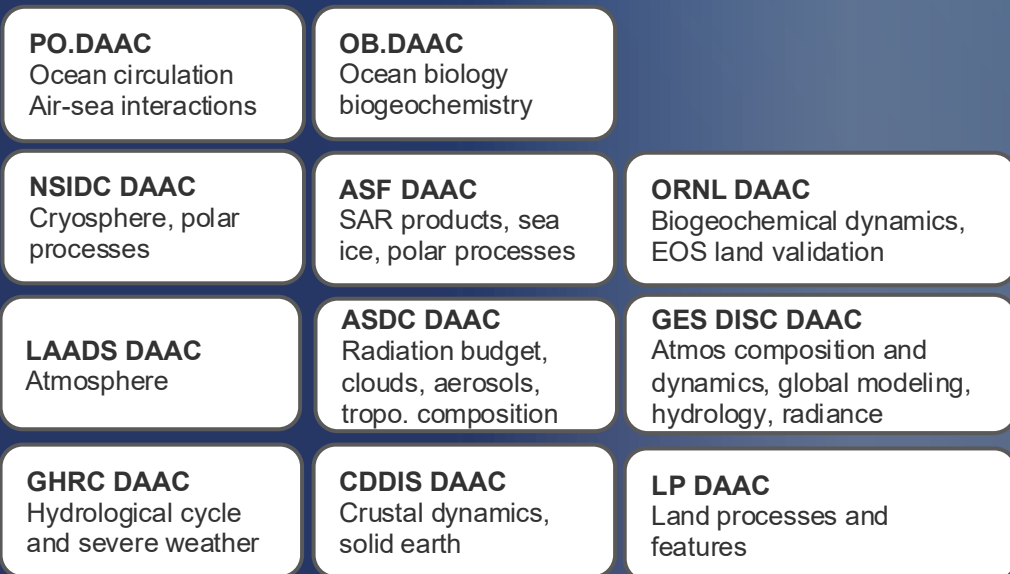
- Future Investigators in NASA Earth and Space Science and Technology (FINESST)
- Multisource Integrated Observatory (MIO)
- Rapid Response and Novel Research in Earth Science (RRNES)
- Supporting High-Impact Opportunities for Uniting Teams (SHOUT)

# Data Systems Strategy

- **Focus on Core Data Systems mission**
  - Quality and Efficiency
  - Technological Evolution
  - Community Support and Open Science
- **Emphasis on:**
  - Ground-breaking science products
  - Foundational data products used by many different parts of the enterprise from research and modeling to applications
  - Near Real Time (NRT) products
- Consolidation of DAACs from 11 independent locations to thematic science enabling teams
- Structure data systems to support AI/ML and processing innovation
- Coordination with other agencies to sustain and enhance data discovery and utility



# Evolving Earth Science User Support



**From:** 11 Geographically-Distributed Full Stack Archives (DAACs)

**To:** Thematic Support Teams:  
no anchoring physical team locations,  
best support regardless of geography

Centralized services:  
Cloud-based ingest, archive,  
distribution, metrics, and cataloging

# EARTH SYSTEM OBSERVATORY

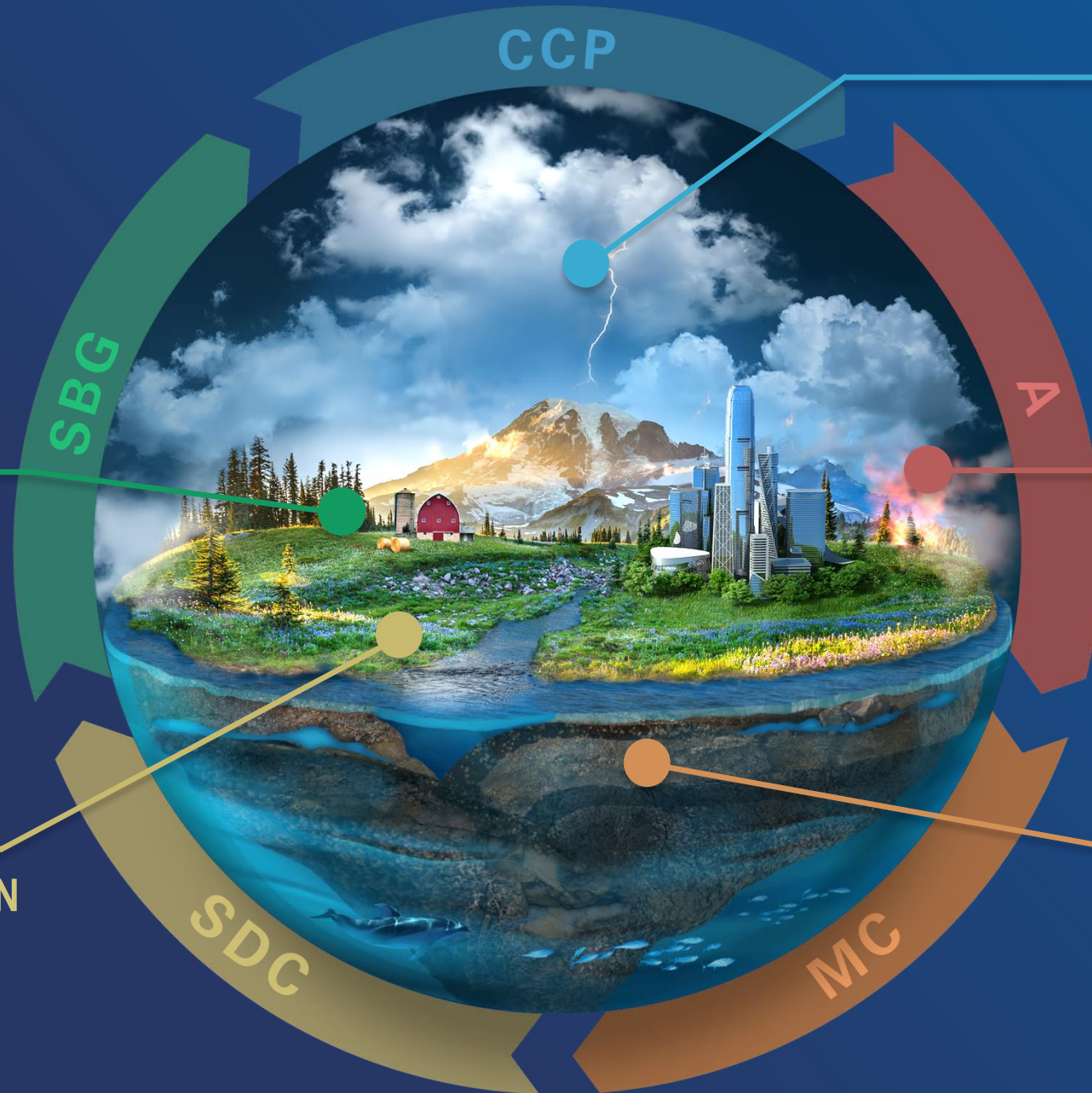
INTERCONNECTED CORE MISSIONS

## SURFACE BIOLOGY AND GEOLOGY

EAGLE-VSWIR  
EDGE  
EAGLE-TIR

## SURFACE DEFORMATION AND CHANGE

NISAR



CCP

## CLOUDS, CONVECTION AND PRECIPITATION

INCUS  
PoSIR  
PMM

FALCON-Lidar  
FALCON-Radar

A

## AEROSOLS

FALCON-Lidar  
STRIVE

SDG

MC

## MASS CHANGE

GRACE-C

# Fleet for the Atmosphere Linking Commercial Observations with NASA **FALCON**

## **PMM (JAXA/GSFC)**

Precipitation profiles

## **FALCON-Lidar (GSFC/LaRC)**

Atmospheric structure and composition measurements

## **FALCON-Radar (JPL)**

Cloud profiles to improve understanding of severe weather drivers.

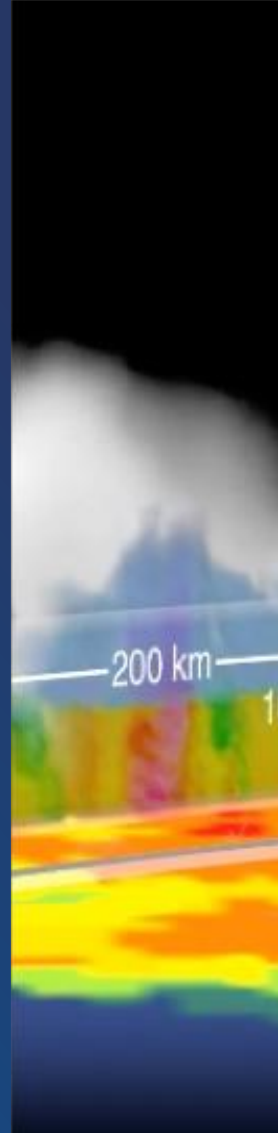
## **FALCON-Radiometry (Commercial)**

RFI Released this week for contribution options

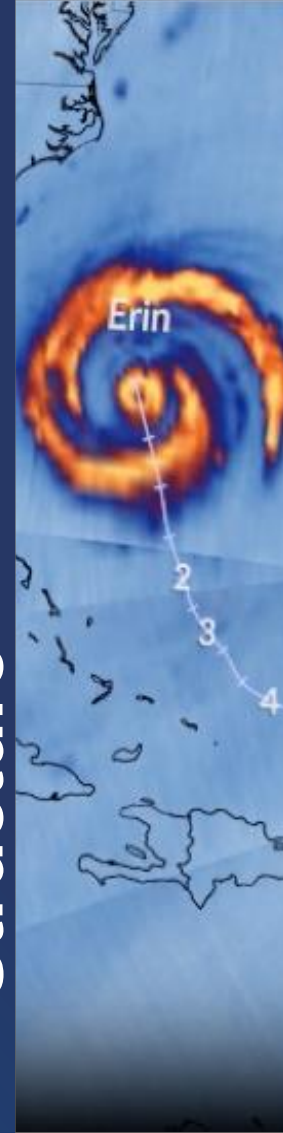
## **Joining the FALCON fleet**

- INCUS (CSU/JPL)
- PoSIR (Vanderbilt/GSFC)
- STRIVE (UW/GSFC)

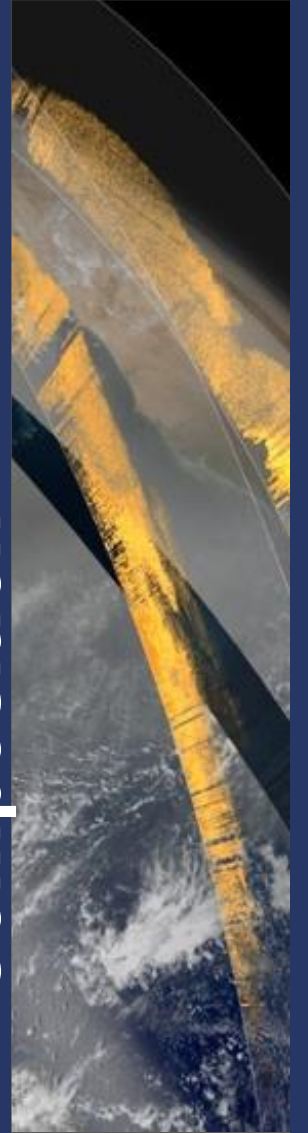
**Profiles**



**Structure**



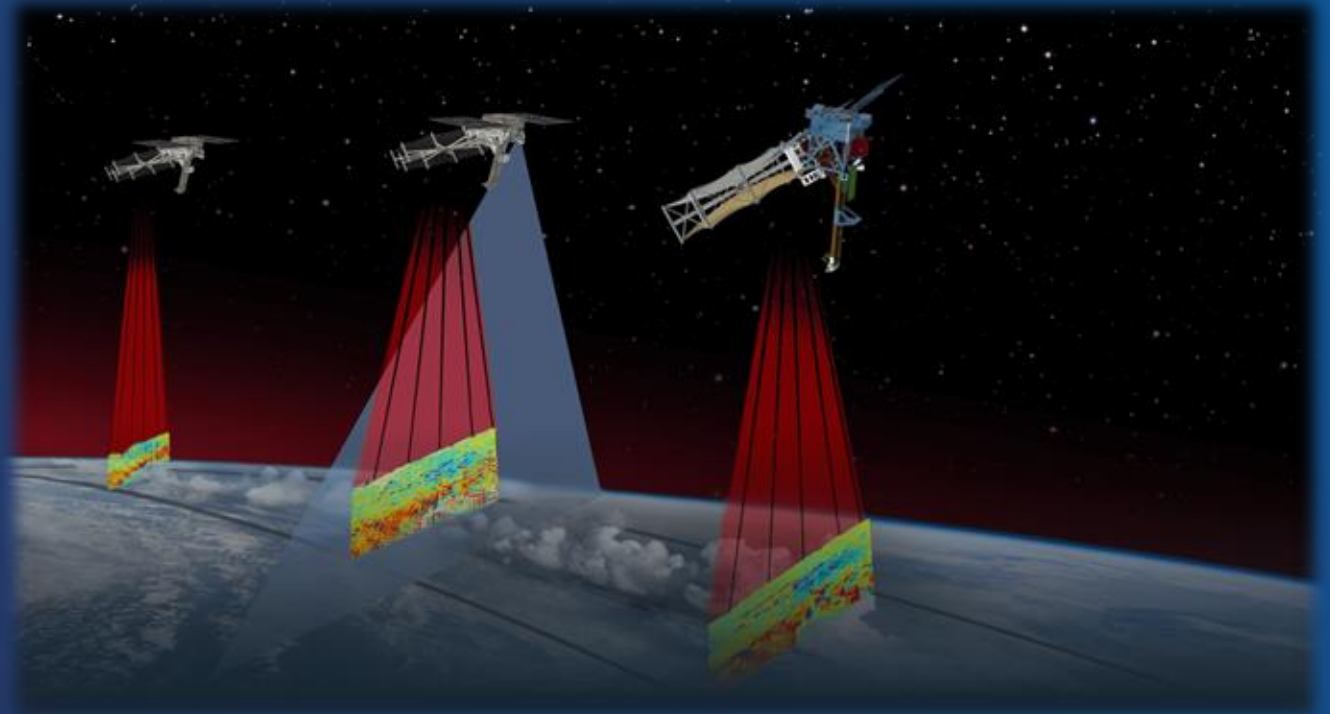
**Composition**



# INvestigation of Convective UpdraftS INCUS

Competed Venture Class Mission  
(CSU/JPL)

- Why convective storms, heavy precipitation and clouds occur exactly when and where they do
- First ever measurements of how much water and air is lifted (convective mass flux) into the atmosphere to understand and improve prediction of severe weather



# Polarized Submillimeter Ice-cloud Radiometer PoISIR

Competed Venture Class Mission (Vanderbilt/GSFC)

- Diurnal variability of tropical and sub-tropical ice clouds to reduce a fundamental uncertainty in Earth system understanding of how and why ice clouds change throughout the day
- Deep convection re-distributes energy around the Earth, and its evolution in a changing climate is an incredibly complicated process
- Observations from PoISIR's two CubeSats will increase understanding of the diurnal cycle of deep convection



# Flight Missions In Development

## Other Developments Continuing

- CLARREO Pathfinder (ISS National Lab partnership for operations)
- CRISTAL A (instrument delivered) and B (in development)
- GLIMR (instrument nearly complete)
- GRACE-C (instrument integration)
- TSIS-2 (spacecraft integration)
- Libera (spacecraft integration)
- MAIA (instrument complete)
- OMPS-Limb (integrated to spacecraft and in storage)



# Launching the Venture Tech Accelerator

*The Venture Technology Accelerator (VTA) program is a new ESTO 'Faster to Science' initiative designed to accelerate transition of next-generation Earth observation technologies to science missions, operational agencies, and/or commercial providers*

Building upon the success of the In-Space Validation of Earth Science Technology (InVEST) program model, VTA aims to further accelerate tech impact and adoption by:

- Maturing high-potential Earth-observing technologies;
- Identifying transition pathways early;
- Engaging potential end users in targeted flight demonstrations and on-orbit validation planning;
- Serving as a bridge to commercialization, infusion, and operations

